

MBR20L40CTW Thru MBR20L200CTW

List

List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Maximum ratings and electrical characteristics	2
Rating and characteristic curves.....	3
Pinning information.....	4
Marking.....	4
Tube packing.....	4
Suggested thermal profiles for soldering processes.....	5
High reliability test capabilities.....	6

MBR20L40CTW Thru MBR20L200CTW

20A Power Schottky Barrier Rectifiers : 40V-200V

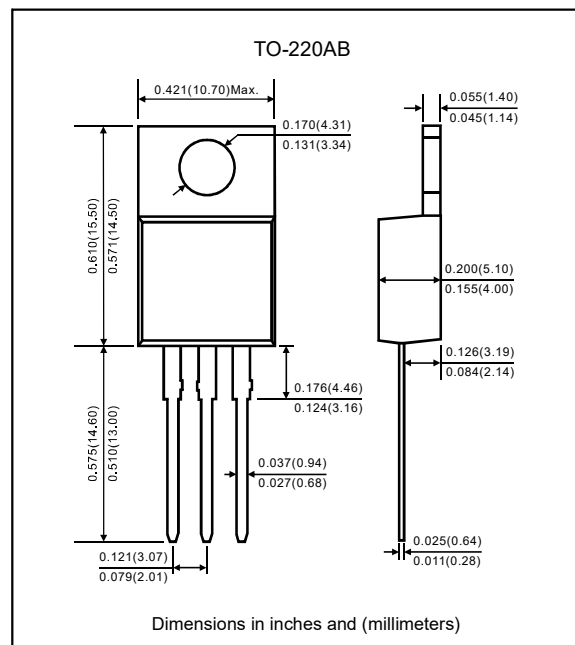
Features

- The plastic package carries underwriters laboratory flame ability classification 94V-0.
- Construction utilizes void-free molded plastic technique.
- Low reverse leakage.
- High forward surge current capability.
- High temperature soldering guaranteed 250°C/10s at terminals.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free parts, ex. MBR20L40CTW-H.

Mechanical data

- Case : JEDEC TO-220AB molded plastic body over passivated chip.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Polarity : Polarity symbol marking on body.
- Mounting Position : Any
- Weight : TO-220AB Approximated 1.85 gram

Package outline



Maximum ratings and electrical characteristics

Ratings at 25°C ambient temperature unless otherwise specified. Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

Parameter	Symbol	MBR 20L40CTW	MBR 20L45CTW	MBR 20L60CTW	MBR 20L100CTW	MBR 20L150CTW	MBR 20L200CTW	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	40	45	60	100	150	200	V
Maximum RMS voltage	V _{RMS}	28	31.5	42	70	105	140	V
Maximum DC blocking voltage	V _{DC}	40	45	60	100	150	200	V
Maximum average forward rectified per device	I _(AV)	20						A
Current at T _c =100°C per device		10						
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	150						A
Maximum instantaneous forward voltage per diode at 10.0A	V _F	0.55		0.60	0.70	0.85		V
Maximum DC reverse current (T _A =25°C)	I _R	0.5			0.05			mA
At rated DC blocking voltage (T _A =125°C)		50			10			
Typical thermal resistance	R _{θJC}	3.5						°C/W
Operating junction temperature range	T _J	+150						°C
Storage temperature range	T _{STG}	-55 to +150						°C

Rating and characteristic curves (MBR20L40CTW Thru MBR20L200CTW)

FIG. 1- DERATING CURVE OUTPUT RECTIFIED CURRENT

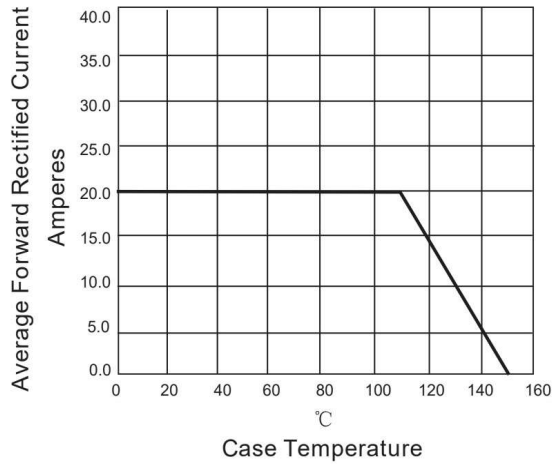


FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PER LEG

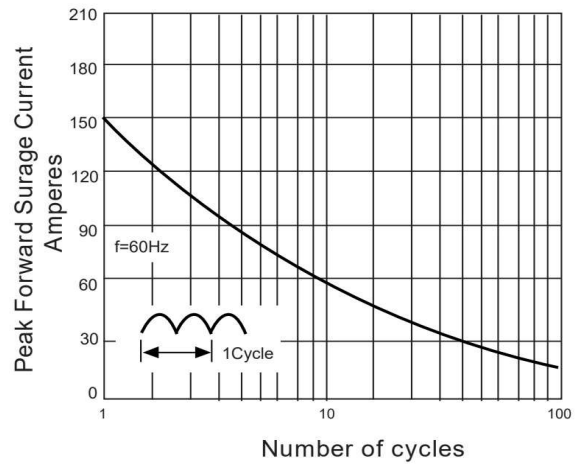


FIG. 3-TYPICAL FORWARD VOLTAGE CHARACTERISTICS

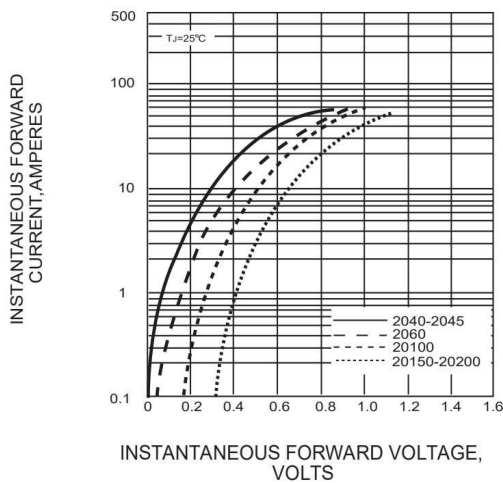
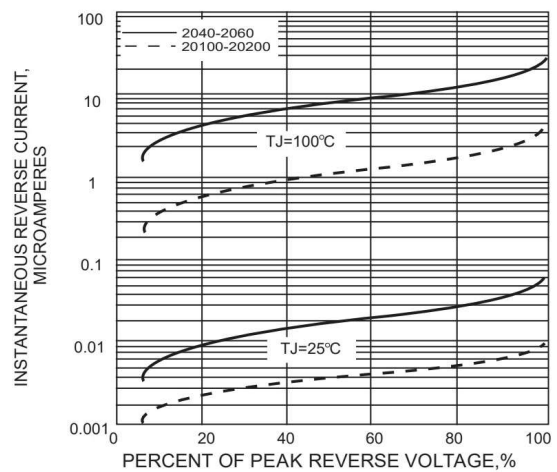
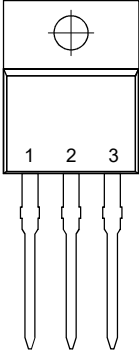
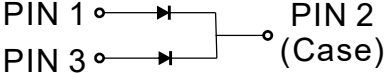


FIG. 4-TYPICAL REVERSE LEAKAGE CHARACTERISTICS



MBR20L40CTW Thru MBR20L200CTW**Pinning information**

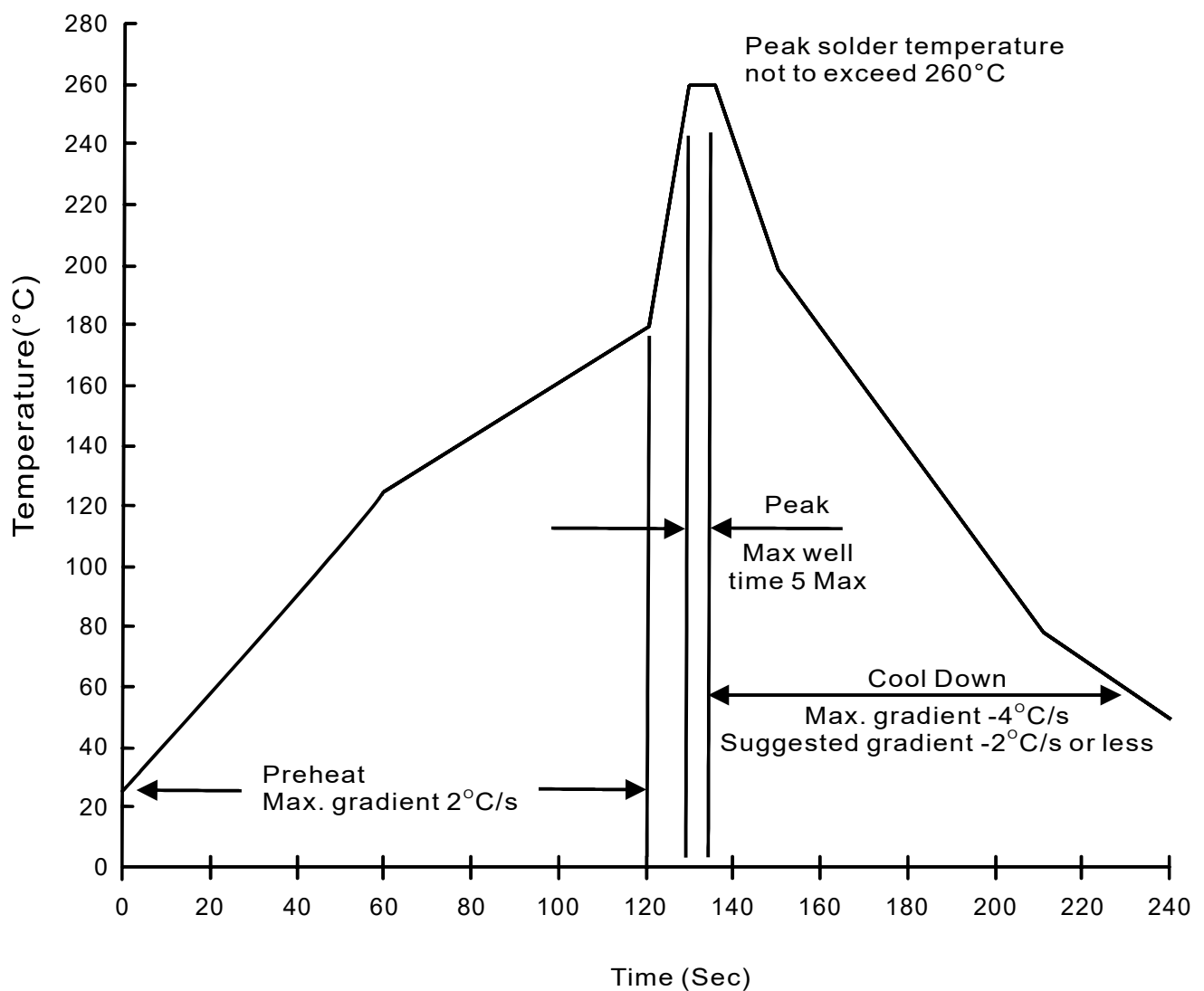
Pin	Simplified outline	Symbol
Pin1 Anode Pin2 Cathode Pin3 Anode		

Marking

Type number	Marking code
MBR20L40CTW	MBR20L40CT
MBR20L45CTW	MBR20L45CT
MBR20L60CTW	MBR20L60CT
MBR20L100CTW	MBR20L100CT
MBR20L150CTW	MBR20L150CT
MBR20L200CTW	MBR20L200CT

Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
TO-220AB	50	525*31.9*6.4	1000	545*150*45	575*245*170	5,000	15.0

MBR20L40CTW Thru MBR20L200CTW**Suggested thermal profiles for soldering processes****1. Lead free temperature profile wave-soldering**

MBR20L40CTW Thru MBR20L200CTW**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^\circ\text{C}$ for $10 \pm 2\text{sec.}$ immerse body into solder $1/16" \pm 1/32"$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^\circ\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A = 25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^\circ\text{C}$, $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A = 121^\circ\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to $+125^\circ\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	8.3ms single half sine-wave , one surge.	MIL-STD-750D METHOD-4066-2
9. Humidity	at $T_A = 85^\circ\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031